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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICATION OF

ROBERT N. HUNT ET AL

SERIAL NUMBER: 09/222,092

FILED: DECEMBER 29, 1998

TITLE: AN IN-LINE PROCESS FOR  
MONITORING BINDER DOSAGE  
AND DISTRIBUTION ON A  
SURFACE AND APPARATUS  
USEFUL THEREFOR

) GROUP NO.: 2878

) EXAMINER: S. LEE

**Reply Brief**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

The Examiner's Answer dated November 5, 2001, has been received and its contents noted. In response thereto, Appellants wish to address several points raised in that Answer in the Examiner's response to arguments made in Appellants' Brief.

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Lyndanne M. Whalen, Reg. No. 29,457

Name of applicant, assignee or Registered Representative

Signature

January 7, 2002

Date

## REMARKS

1. DEVRIES ET AL DOES NOT TEACH THAT RESINS IN WHICH NO BENZOCYCLOBUTENE GROUP IS PRESENT CAN BE EVALUATED BY THE METHOD OR APPARATUS DISCLOSED THEREIN.

At page 13, lines 19-21 of the Answer, the Examiner notes that DeVries et al teaches that a fluorescence spectrometer may be used to screen resins for their suitability for fluorescent optical inspection at column 6, lines 60-61.

Appellants would point out, however, that the teaching at column 6, lines 60-61 of DeVries et al is directed to resins containing **both** the benzocyclobutene group and at least one other group which could "quench the fluorescence" of the benzocyclobutene group such as ketone and hydroxy functionalities. (column 5, line 61-column 6, line 59 of DeVries et al)

Therefore, when read in context, the teaching of the reference cited by the Examiner is **not** directed to resins in which no benzocyclobutene group is present. The teachings of DeVries et al can not therefore be properly construed to teach anything with respect to resins or binders in which no benzocyclobutene group is present, such as the isocyanate binder exemplified in Appellants' specification.

A device which is capable of achieving a result that is not taught or suggested by the prior art is clearly not disclosed by that prior art in the manner necessary to support a proper rejection under 35 U.S.C. § 102.

Appellants' claimed invention is capable of measuring binder dosage **even when** no benzocyclobutene group is present as has been demonstrated in the Examples given in the present application.

DeVries et al does not teach or suggest that the device disclosed therein would be capable of measuring the dosage of a binder having no benzocyclobutene groups.

DeVries et al does not therefore disclose Appellants' claimed invention in the manner necessary to support a proper rejection of their invention under 35 U.S.C. § 102.

At page 3, lines 21-page 14, line 2 of the Examiner's Answer, it is argued:

If appellants' argument is correct, there is no need to screen a resin for suitability for fluorescent optical inspection as taught by DeVries et al.

Appellants fail to appreciate the basis for this argument.

More specifically, Appellants have argued that DeVries et al teaches **only one** type of fluorescent material, i.e., one which contains a benzocyclobutene group. The reference does not teach a device or method capable of measuring binder dosage when the binder does not have benzocyclobutene groups. Appellants' claimed device and method are, however, capable of such measurement.

2. APPELLANTS' CLAIMS ARE CLEARLY DIRECTED TO BINDERS WHICH ARE "NOT FULLY FORMED POLYMERS."

At page 14 of the Examiner's Answer, it is argued that Appellants' claims do not recite the feature "not fully formed polymer".

Claims must be read as they would be read by one of ordinary skill in the art.

Appellants maintain that one skilled in the art would readily appreciate that the expression "composite-forming material to which binder has been applied" (which is used in both Claims 1 and 14 from which all of the other claims depend) is describing a binder which is **not** a fully formed polymer because a fully formed polymer would not be suitable as a binder in the production of composite materials.

At page 14, line 20- page 15, line 3 of the Examiner's Answer, it is argued that DeVries et al teaches determination of resin properties "during or after the processing steps."

Appellants submit that because DeVries et al is directed to the production of a **completely different** type of article than the composite materials being produced in Appellants' invention, the processing steps and materials used in the respective processes are significantly different and not directly comparable.

More specifically, DeVries et al teaches production of articles "containing thin films of benzocyclobutene containing resins" used as dielectric **layers** in electronic applications such as computer chips. Appellants' invention is directed to the

production of composite articles made from materials such as wood chips, shavings, strands, etc. in which a binder is used to cement together those chips, shavings, etc. to produce boards.

In the DeVries et al electronic applications, the resin is a layer. In Appellants' application, the binder is distributed throughout the irregularly shaped wood chips, shavings, etc. A fully cured polymer layer or film is inspected by DeVries et al during production of multi-layered metal circuitry (Example 2 of the reference) and silicon wafers (Examples 1 and 3 of the reference). In contrast, Appellants measure binder dosage and distribution on irregularly shaped surfaces **before** the binder has been heated to cure the binder. (See Appellants' process description at page 13, line 20 through page 14, line 6 of the present application.)

The Examiner's criticism of Appellants' argument is not therefore warranted when all of the facts in this case are considered.

3. APPELLANTS' BINDER IS APPLIED TO IRREGULARLY SHAPED PARTICULATE MATERIALS AND **NOT** A SMOOTH SURFACE LAYER.

At page 15 of the Examiner's Answer, it is argued that Appellants' description of their composite-forming materials as being "coated" with binder means that only surface distribution (in the same sense as the surface layer of DeVries et al) is determined by Appellants' invention.

Appellants maintain that coating particles such as wood chips, strands, etc., with a binder to form boards does not result in the same type of coating as that which is described in the DeVries et al reference. Determination of the distribution of binder on the surfaces of particulate materials is achieved by the present invention. There are, however, no particles over which to distribute the resin in the DeVries et al articles. DeVries et al merely coat a single, uniform surface layer of a metal or a silicon wafer.

The Examiner further argues that Appellants' have not disclosed or claimed an invention which determines the distribution of the reactive binder throughout the substrate.

Appellants respectfully disagree.

The "substrate" to which binder is applied in the claimed invention is a particulate material. As can be seen from Figures 3-7, the discussion of those Figures and of the image analysis performed in carrying out the process of the present invention at page 8 and page 14, lines 7-27 of the specification, Appellants have disclosed an invention which determines binder distribution throughout that particulate substrate. Appellants' claims require this element of the invention as component e) in Claim 1 and in process step e) in Claim 14, the claims from which all of the remaining claims depend.

4. THE TEACHINGS OF A REFERENCE MUST BE READ AS THEY WOULD BE READ BY ONE OF ORDINARY SKILL IN THE ART WHO HAS NOT HAD ACCESS TO APPELLANTS' SPECIFICATION.

At page 16 of the Examiner's Answer, it is argued that it is immaterial that the teaching with respect to determination of resin properties during actual production of those materials upon which he has relied appears in the discussion of the prior art.

DeVries et al teaches that "it is advantageous to be able to determine the configuration" of resins used as dielectric layers in electronic applications or as thin films in other applications "during or after the processing steps used to fabricate a finished article containing the resin." (column 1, lines 13-17)

However, DeVries et al does not teach how to accomplish such determination when a material that does not include a benzocyclobutene group is applied to particulate materials such as the wood chips, strands, etc. used in Appellants' invention.

The processing steps referred to by DeVries et al are those steps used to produce electronic components with an already-formed resin layer. That is, DeVries et al does not analyze the disclosed fluorescent resin at a point in the production

process which would permit adjustment of that resin concentration and distribution during the production of the finished article.

Appellants' invention does make it possible to make such adjustments to binder dosage and distribution prior to curing of the binder.

5. NO AUTHORITY HAS BEEN CITED TO SUPPORT THE EXAMINER'S POSITION THAT UNIFORMITY OF A COATING APPLIED TO A SMOOTH SURFACE SUBSTRATE IS EQUIVALENT TO SURFACE COVERAGE OF A BINDER TO AN IRREGULARLY SHAPED SUBSTRATE SUCH AS WOOD CHIPS.

At page 16, lines 15-17 of the Examiner's Answer, it is argued:

Since coating uniformity and surface coverage are equivalent, the method and apparatus of DeVries et al can be used to determine distribution from images. (emphasis added)

Appellants submit that the above-quoted premise upon which the Examiner's conclusion is based is incorrect.

DeVries et al determines distribution of a relatively even layer applied to a substrate having a relatively uniform surface. There is no teaching in DeVries et al with respect to determination of the distribution of a binder applied to a large number of small, irregularly shaped materials such as wood chips, shavings, strands, etc.

One skilled in the art would obviously expect to encounter more difficulty in evaluating small irregularly shaped coated material than in evaluating a coated relatively uniform surface. That skilled artisan would not consider such completely different types of coatings to be equivalent.

The Examiner's argument does not therefore provide a proper basis for the rejection of Appellants' claims.

6. DEVRIES ET AL DOES NOT TEACH USE OF A BAND OF WAVELENGTHS.

At page 16, line 19 through page 17, line 9 of the Examiner's Answer, it is argued that DeVries et al teaches that a range of different wavelengths may be used in the reference method.

However, the cited portions of the reference relied upon by the Examiner are directed to "a broad band pass filter" which is chosen to block only the illuminating light wavelengths while "allowing fluorescent light of any wavelength to pass to the detector." This pass filter is typically used with "a bright line source" (column 7, line 24) which preferably has a wavelength of 337.5, 356.4 or 408 nm of a  $Kr^+$  laser; or 351.1 or 383.8 nm of an  $Ar^+$  laser; or 325 or 442 nm of a He/Cd laser; or 254 or 365 nm of a mercury vapor lamp. (column 7, lines 34-38).

Appellants' claimed invention requires "a source of long wave ultraviolet light." Such source is obviously not limited to a single wavelength.

The Examiner's construction of the teachings of DeVries et al and criticism of Appellants' argument are not therefore supported by the facts of this case.

7. APPELLANTS HAVE PRESENTED ARGUMENTS WITH RESPECT TO THE COMBINED TEACHINGS OF REFERENCES CITED TO SUPPORT THE REJECTIONS OF APPELLANTS' CLAIMS.

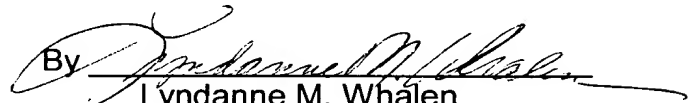
At page 17, lines 13-15 of the Examiner's Answer, the Examiner "responds" to Appellants' arguments by stating that one cannot show non-obviousness by attacking references individually.

Appellants submit that this "response" does not address Appellants' arguments that the secondary references do not teach features of their invention which are also not disclosed by the primary reference.

A combination of references which does not teach one or more features of a claimed invention can not render that claimed invention obvious.

For these reasons and those discussed in their Brief, Appellants continue to maintain that each of the rejections made by the Examiner is in error and respectfully request that each of those rejections be reversed and that Claims 1-21 be allowed.

Respectfully submitted,

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